

ORIGINAL
(Red)

Mr. Brandt replied that he wants to understand what he has to do here today and he will do it. It is directly related to the amount of money this project will cost.

Mr. Saunders answered that the only remark we can possibly make here is a statement of principle that from an industrial hygiene standpoint, regarding control measures, it will be sufficient if the surface is not broken, which is contingent upon the traffic.

Mr. Brandt asked if we would accept 18 inches of concrete in lieu of 18 inches of clay?

Dr. Cardona remarked that he consulted a soil scientist from the U.S. Department of Agriculture and he said there is no question about Christinana soil being acceptable. Iron is there in considerable amounts. If there is any leaching or any upward pushing of the arsenic by ground water onto that layer, there is a chemical reaction with any free arsenic there, to the iron and therefore you have iron arsenic, which is an almost insoluble compound of arsenic. The clay carrier is impermeable and also has certain properties that will catch that arsenic that is still in free form. Whether concrete will do the same, we do not know.

Mr. Jepson referred to an agreement reached at meetings held a year ago, that when you have residential houses, where they might have gardens, and obviously you wouldn't want concrete, therefore the clay barrier was necessary or another suitable surface, and EPA was happy with that and so was our office. What constituted "suitable surfaces" had to be defined later, whether concrete or anything else.

Mr. Brandt agreed, then asked that if he builds these foundations in such a way so that there is 18 inches of concrete and/or 18 inches of red clay, that basically will answer the tract area that we are referring to?

Mr. Jepson agreed that there is very little chance that arsenic would come up because ground water is below that surface.

Mr. Saunders suggested that if Mr. Brandt would use clay for grading, it certainly does a much better job of stopping water.

Mr. Brandt asked the question as to whether he could take 15 inches of clay and 4 inches of concrete?

A call was made by Mr. Hopkins to Mr. Schwarberg, State Water Control Board, since Dr. Cardona stated that the State Water Board set the 18 inch requirement and any change would have to be approved by the Board. (Mr. Hopkins later indicated since their objective is to prevent contaminated runoff there would be no problem from their standpoint as long as the barrier is not breached by cracking, digging or erosion.

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A good clay barrier plus some protective cover seems an acceptable method for a long-term solution).

Mr. Saunders remarked that the other desirable advantage to having at least some clay is that it is plastic and self-sealing whereas concrete is not.

Mr. Brandt added that they will put a vapor barrier beneath the concrete on top of the clay. He brought out one other problem that when they extend through this if he surrounds the water and sewer pipes with 18 inches of clay on all sides, that solves the problem.

A study of the map was made pointing out where there were areas of very little contamination, specifically in front of the proposed buildings where the water supply would be brought in from the street.

Mr. Brandt would be willing to run tests in order to place the utilities in the least contaminated areas.

Mr. Jepson stated he would have no objection if he would run some readings in there. He further proposed they have somebody move the railroad ties, and take the arsenic content. A way of treating these cross-ties would be to take them out and pressure steam clean them, take a reading right on the site, then if it shows no arsenic, they can be disposed of anyway you want.

Mr. Brandt asked why they can't just leave them there and bury them?

Mr. Jepson warned that you can't do that because they will just rot away eventually when the creosote is gone, and you will have a difficult organic material to deal with.

Mr. Brandt stated that he had two alternatives, namely;

- (1) if he gets readings that represent that there is minimal arsenic in front of these houses, he will move the line back to the edge of construction, and
- (2) if not, we can put the water and sewer in by the same method that we did across the street.

Mr. Jepson replied that it was a little different across the street as there you had far less contamination and could use polyethelene.

Mr. Saunders added he didn't believe Mr. Brandt had submitted plans to be looked at by the sanitary people in Richmond. He felt there needs to be additional discussion and would prefer to see a different type of pipe rather than wrapping. The problem is that there is no way to insure even if you install mechanical devices that you will never have